5. Janice

Program Name: Janice.java **Input File: janice.dat**

Your best friend Janice and her friend Ariel like to send secret messages to each other, and they've taken to using a Caesar cipher to encode their messages. You need to determine what key they are using, given the encoded and real messages, and use it to decode another message. A Caesar cipher works by shifting the alphabet to the right a given amount (let's call it s), and substituting all the letters in the original message with their corresponding letter in the newly shifted alphabet.

Input: The first line will contain a single integer `n (0 < n < 50)` that indicates the number of data sets that follow. Each data set will consist of three lines, each with their own string of uppercase letters and spaces. The first line will be the actual message that has been sent, the second line will be the encoded version of that message, and the third line is another encoded message to be decoded.

Output: Output the decoded third line of the input, using the first two lines to determine the new alphabet to be used to decode the third line.

Sample input:

```
4
HELLO ITS ME
DAHHK EPO IA
E SWO SKJZANEJC EB WBPAN WHH PDAOA UAWNO UKQZ HEGA PK IAAP
LUKE
SBRL
P HT FVBY MHAOLY
SOMEBODY ONCE TOLD ME
EAYQNAPK AZOQ FAXP YQ
FTQ IADXP IME SAZZM DAXX YQ
ABCDEF
STUVWX
YZABCDEFGHIJKLMNOPQR
```

Sample output:

```
I WAS WONDERING IF AFTER ALL THESE YEARS YOUD LIKE TO MEET
I AM YOUR FATHER
THE WORLD WAS GONNA ROLL ME
GHIJKLMNOPQRSTUVWXYZ
```